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LACROSSE HANDLE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present invention claims priority from U.S. Provisional Application Serial No. 60/403,922, filed August 16, 2002, and entitled "Lacrosse Stick With Increased Strength" and U.S. Provisional Application Serial No. 60/415,190, filed October 1, 2002, and entitled "Lacrosse Handle Having Variable Wall Thickness."

TECHNICAL FIELD

[0002] The present invention relates generally to a lacrosse handle for attachment to a lacrosse head. More particularly, the present invention relates to a lacrosse handle for attachment to a lacrosse head that has increased strength and resistance to breakage or damage.

BACKGROUND OF THE INVENTION

[0003] Original lacrosse handles were constructed of wood. These wood handles were shaped such that the lacrosse handle and the lacrosse head were a single integral wood structure. These wooden lacrosse handles suffered from a variety of disadvantages. Initially, these wooden handles were susceptible to damage from excess exposure to water such as through warping. Further, these prior wooden handles were heavy and somewhat cumbersome and also susceptible to breakage. Moreover, because the wood had to be bent to form the sidewall and the scoop, a significant amount of time was involved in forming or making each of these wooden lacrosse handles, which made them relatively expensive. Because the lacrosse handle and head were a single structure, if any portion of the head or the handle broke or was damaged, the entire wooden handle and head needed to be replaced.

[0004] Subsequently, plastic lacrosse heads were developed which were intended to be attached to a lacrosse handle. As the lacrosse heads and the lacrosse handles were separate components that could be manufactured separately, if either the lacrosse handle or the lacrosse head became damaged or broke, each component could be replaced individually. The original handles for attachment to these plastic heads were constructed of wood. These handles were also susceptible to water damage and were relatively heavy and cumbersome.

[0005] Thereafter, metal lacrosse handles were developed for attachment to the plastic lacrosse heads. The initial metal handles were less expensive than the prior wood handles. However, they were relatively heavy, which provided disadvantages from both a playability and a safety standpoint. Current lacrosse handles are constructed of a lighter metal, such as aluminum or titanium. These lacrosse handles typically take the form of a hollow metal tube, and are formed by extrusion or similar processes. While having a relatively light weight, the hollow handles are susceptible to breakage or damage. Additionally, these conventional handles also are formed with a uniform wall thickness along the entire length of the tube. In other words, the cross-sectional thickness of the handles from one end to the other end is the same. Moreover, the top and bottom halves of these conventional handles are symmetrical. This is disadvantageous in that the handle does not assist a player in determining the orientation of the handle and thus the attached lacrosse head in the player's hand.

[0006] Therefore, a need exists for a lacrosse handle that has increased durability without significantly increasing the weight thereof. A need also exists for a lacrosse handle that provides a player with tactile feedback as to the orientation of the handle in the player's hand.

SUMMARY OF THE INVENTION

[0007] It is therefore one advantage of the present invention to provide an improved handle for a lacrosse head that provides tactile stimuli or feedback such that a player can sense the orientation of a lacrosse head attached to the handle without the need for visual inspection.

[0008] It is another advantage of the present invention to provide a lacrosse handle having increased strength and durability.

[0009] It is a related advantage of the present invention to provide a lacrosse handle for a lacrosse head having increased strength and durability that does not require a significant increase in the weight of the handle.

[0010] It is yet another advantage of the present invention to provide a handle for a lacrosse head that yields improved playability and handling.

[0011] It is still another object of the present invention to provide a lacrosse handle for attachment to a lacrosse head that has a varying or non-uniform wall thickness.

[0012] In accordance with the above and the other advantages of the present invention, a handle for a lacrosse head is provided. The handle is constructed as a hollow tube having an interior surface and an exterior surface. The hollow tube has a first end for communicating with a throat portion of a lacrosse head and a second end opposing the first end. The hollow tube has a first wall thickness defined by a distance between the interior surface and the exterior surface at one location along the hollow tube and a second wall thickness defined by a distance between the interior surface and the exterior thickness at another location along the hollow metal tube. The first wall thickness has a greater magnitude than the second wall thickness.

[0013] Other advantages of the present invention will become apparent when viewed in light of the detailed description of the preferred embodiment when taken in conjunction with the attached drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] For a more complete understanding of this invention, reference should now be made to the embodiments illustrated in greater detail in the accompanying drawings and described below by way of examples of the invention.

[0015] FIGURE 1 is a side view of a lacrosse handle for attachment to a lacrosse head in accordance with one embodiment of the present invention;

[0016] FIGURE 2 is a cross-sectional view of the lacrosse handle of Figure 1 in the direction of the arrows 2-2;

[0017] FIGURE 3 is a cross-sectional view of the lacrosse handle of Figure 2 in the direction of the arrows 3-3;

[0018] FIGURE 4 is an enlarged view the portion of the lacrosse handle of Figure 2 within the circle labeled 4;

[0019] FIGURE 5 is a cross-sectional view of a lacrosse handle in accordance with another embodiment of the present invention;

[0020] FIGURE 6 is an enlarged view of the portion of the lacrosse handle of Figure 5 within the circle labeled 6;

[0021] FIGURE 7 is a cross-sectional view of a lacrosse handle in accordance with still another embodiment of the present invention; and

[0022] FIGURE 8 is an enlarged view of the portion of the lacrosse handle of Figure 7 within the circle labeled 8.

DETAILED DESCRIPTION OF THE INVENTION

[0023] In the following figures, the same reference numerals are used to identify the same components in the various views.

[0024] In the embodiment, illustrated in Figures 1 through 4, a lacrosse handle having non-uniform wall thickness is shown. The lacrosse handle 10 is preferably an eight sided structure that is generally symmetrically shaped on either side of a handle centerline as is well known in the art. It will be

understood, however, that the lacrosse handle can take on a variety of different shapes. The lacrosse handle 10 is preferably constructed of metal, such as aluminum or titanium. However, the handle may be formed of a variety of other materials, such as a variety of alloys. The handle 10 also is preferably constructed as a hollow metal tube with a top portion 12 and a bottom portion 16. The top portion 12 and the bottom portion 16 are generally defined by a centerline 14 of the handle 10.

[0025] The top portion 12 has a first wall thickness (t_1) and the bottom portion 16 has a second wall thickness (t_2). In conventional lacrosse handles, the first wall thickness and the second wall thickness are the same. In fact, in conventional lacrosse handles, the wall thickness is the same along the length of the handle. In accordance with the present invention, the handle 10 has varying wall thicknesses and, in one embodiment, the second wall thickness (t_2) is greater than the first wall thickness (t_1). In other words, at least a portion of the lacrosse handle 10 has a wall thickness on one side of the centerline 14 that is greater than the wall thickness of another portion of the lacrosse handle 10 on the other side of the centerline 14.

[0026] As an illustrative example, the wall thickness (t_1) of the top portion 12 is approximately .040" while the wall thickness (t_2) of the bottom portion 16 is approximately .050". It will be understood that that dimensions of the tube wall may vary and dimensions given are merely for purposes of illustration. More preferably, the lacrosse handle 10 is configured such that one half of the handle 10 has a wall thickness that is increased with respect to or greater than the wall thickness of the other half of the handle 10. In one embodiment, the increased wall thickness is generally uniform from one end of the handle to the other end. However, it will be understood by one of ordinary skill in the art that the wall thickness can be different at any two locations along the handle 10.

[0027] This increased wall thickness provides a tactile stimuli or feedback such that a player using the handle 10 can sense in what direction the handle 10 is configured in the player's hand, i.e. whether the portion having an increased wall thickness is facing upward or downward or somewhere in between. As the lacrosse handle 10 is attached to a lacrosse head, the player can also sense the direction the lacrosse head is facing, based solely on the feel of the weight of the handle in the player's hands. This feature eliminates the need for a player to look at the lacrosse head to determine its orientation during play thereby allowing the player to focus on the game.

[0028] While one way of varying the handle thickness to provide tactile stimuli or feedback is disclosed above and shown in Figures 1 through 4, it will be appreciated that the lacrosse handle wall thickness can be varied in other ways to provide this tactile feedback. For example, in the half of the lacrosse head 10 where the thickness is increased, the thickness need not extend from one end of the handle to the other. Instead, it need only extend along a portion of the length of the handle. It will be understood that that the increased thickness can extend along any portion of the length of the handle as desired. Alternatively, the increased wall thickness does not need to be uniform from one end of the handle to the other, i.e. the magnitude of the increase may vary. Instead, the half of the handle having the greater wall thickness can have deviations in that thickness along the length of the handle. Moreover, a half weight or other similar structure could be secured within the handle 10 to provide the tactile feedback. It will be understood that the handle 10 can take on a variety of other configurations to allow a player to sense the direction the attached head is facing, including having a side of the lacrosse handle having larger wall thickness than the other side.

[0029] In another embodiment, shown in Figures 5 and 6, the lacrosse handle 10 has a varying wall thickness to provide for increased strength. The handle 10 is preferably comprised of a metal material, however, a variety of

other materials may instead be utilized. In this embodiment, the handle 10 is comprised of a hollow tube, which has a first wall thickness (t_1) adjacent a first end 18 and a second wall thickness (t_2) adjacent a second end 20 with the wall thickness (t_1) being larger than the wall thickness (t_2). As shown, the wall thickness of the tube wall is gradually tapered such that the hollow interior portion becomes gradually wider as it extends from one end to the other end. As an illustrative example, the tube wall thickness gradually tapers from about .050" at the first end 18 to about .040" at the second end 20, which attaches to the head. As shown in Figure 6, the thickness of the tube wall at the portion 24 is larger than the thickness of the tube wall at the portion 26.

[0030] It will be understood that he taper may extend in the other direction. It will also be understood that that dimensions of the tube wall may vary and dimensions given are merely for purposes of illustration. Preferably, the dimension of the outside wall of the tube remains the same, i.e. generally parallel to the centerline 14. Put another way, the distance between the exterior surface 28 across the widest part of the handle at the first end 18 is the same as the distance between the exterior surface 28 across the widest part of the handle at the second end 20. However, the distance between the interior surfaces 30 varies from the first end 18 to the second end 20. It will be understood that the taper can be gradual beginning at one end of the handle and tapering along the entire length of the handle. Alternatively, the tapering can begin at the midsection 22 of the handle 10 or at any other location such that it tapers only along a larger or smaller portion of the length of the handle 10.

[0031] Preferably, the thinner hollow portion (thickest part of the tube wall) is inserted into the throat of the lacrosse head such that the thicker portion of the tube wall is adjacent the lacrosse head. In this embodiment, the thicker portion would correspond to the first end 18. This taper is intended to provide increased strength to the handle 10 by providing a thicker portion, which results in a lacrosse handle that is stronger and more resistant to breakage. It

will be understood that the taper can alternatively be configured such that the thicker portion is adjacent the butt end of the handle. This increased weight at the butt end acts as a counterweight to provide more force as the handle is brought downward during shooting or passing to yield increased ball velocity due to the resulting "whip" action. In yet another embodiment, the lacrosse handle can have increased wall thickness generally in the areas where a player's hands are primarily intended to contact the handle.

[0032] Referring now to Figures 7 and 8, which illustrate another embodiment in accordance with the present invention. In this embodiment, the lacrosse handle 10 has a varying wall thickness to provide for increased strength. The handle 10 is preferably comprised of a metal material, however, a variety of other materials may instead be utilized. As shown, the handle 10 is comprised of a hollow tube, which has a first wall thickness (t_1) adjacent a first end 18, a second wall thickness (t_2) adjacent a second end 20, and a third wall thickness (t_3) adjacent the middle portion 22 of the handle 10. In this embodiment, the wall thickness (t_1) and the wall thickness (t_2) are generally the same and are both larger than the wall thickness (t_3). As shown, the wall thickness of the tube wall is larger adjacent the first end 18 and the second end 20, but is decreased in the middle portion 22 of the handle. Thus, the handle has a wall thickness that is decreased in the middle portion 22 with respect to the end portions 18, 20. It will be understood that the thickness increases in the wall may be located in a variety of different locations. Again, in this embodiment, the dimension of the outside wall 28 of the tube remains the same, i.e. generally parallel to the centerline 14, while the hollow interior portion 32 decreases in size. Put another way, the distance between the exterior surfaces 28 across the widest part of the handle 10 at the first end 18 is the same as the distance between the exterior surfaces 28 across the widest part of the handle at the second end 20. However, the distance between the interior surfaces 32 varies.

[0033] While particular embodiments of the invention have been shown and described, numerous variations and alternate embodiments will occur to those skilled in the art. Accordingly, it is intended that the invention be limited only in terms of the appended claims.